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14. ABSTRACT Technical skill is at the core of surgery. Surgical training typically lasts for a specified time period or number of procedures. This approach produces surgeons with considerably variable skill levels. Also, training on patients is becoming unacceptable for patient safety. In contrast, pilots and other non-medical personnel are trained to criteria on simulators to ensure skill proficiency in their MOS prior to reporting for duty. Proficiency levels are objectively established by experienced practitioners, and the trainee is required to consistently demonstrate that level of proficiency before progressing. We propose to use a surgical simulator (the ES3) to train surgical residents to criterion performance levels, and to investigate whether criterion-based training is superior to training for a fixed number of trials. Twenty-four otolaryngology residents will serve as subjects. Eight attending otolaryngologists will establish performance criteria and will serve as comparators for infra-operative assessment. Subjects will complete a battery of validated objective tests to assess visuospatial, perceptual and psychomotor abilities. An experimental group will be trained to criterion on the simulator, and then perform a procedure on a patient. A control group will train by repeatedly performing the same procedure on patients, with no simulator training. All procedures will be videotaped and objectively assessed for explicitly defined metrics. We hypothesize that prior training to established criteria will reduce surgical errors, and provide evidence for training on simulators before ever operating upon a patient.					
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INTRODUCTION:

Technical abilities are highly individualistic, as shown by the wide range of ability characterizing different musicians, artists, and others. Given that the issue of creating a competent and safe surgeon is of paramount importance, we hypothesize that the objective measurement of a resident's progress is critical to both the achievement and the assessment of proficiency.

BODY:

Eight junior (postgraduate years 1, 2, and 3) Otorhinolaryngology residents were enrolled at the Montefiore Medical Center site. Seven have undergone baseline skills assessment on the Endoscopic Sinus Surgery Simulator, and three have performed a digitally recorded pre-training surgical procedure in the operating room. Three residents have completed training to proficiency, indicated by achieving a score of greater than 94 on the Sinus Surgery Simulator three consecutive times, as previously determined by a panel of experts. Two of these residents have performed a digitally recorded post-training surgical procedure in the operating room and therefore have completed their participation in the study. The other resident will perform the digitally recorded post-training surgical procedure in the operating room as soon as an eligible surgery becomes available. The remaining residents will also be recorded on their first surgical performance, trained on the ES3 until the desired level of proficiency is reached, and then recorded on their final surgical performance.

The control group is being made up of eight junior Otorhinolaryngology residents from two collaborating institutions, New York Eye and Ear Infirmary and New York University Medical Center. Our efforts in establishing the control group had been extensively delayed while awaiting ORP approval for submission of an IRB to our two collaborating institutions. We had originally sent the application to the ORP on February 15, 2007. The subject protocol for New York University Medical Center was resubmitted on July 29, 2008. The subject protocol for that institution was reviewed and accepted by the USAMRMC, ORP, and HRPO on July 30, 2008. Since ORP approval of IRB submission to our collaborating institutions, four of the eight junior residents at New York University Medical Center who will make up the control group had their base-line skills assessed. Two of these residents were videotaped while assisting in an ESS case and one of these residents has assisted in a second ESS case. We will finish assessing the base-line skills of the other four junior residents who will make up the control group, and will follow that by videotaping the live training procedures done by the control residents.

We have videotaped the benchmark endoscopic sinus surgical procedures performed by two otolaryngology attending doctors. We plan on taping three more attending doctors shortly since this aspect of the study was also dependent on receiving ORP clearance for IRB submission.

We are also currently in the process of gathering expert sinus surgeons to make up the rater group, so that upon completion of all of the surgical procedure recordings we will have a group ready to rate the subject and control group.

Key Research Accomplishments:

- **Completion of initial assessment by 7/8 subject group residents on ES3**
- **Completion of initial recording of pre-training surgical procedure by 3/8 subject group residents**
- **Completion of training to proficiency by 3/8 subject group residents on ES3**
- **Completion of final recording of post-training surgical procedure by 2/8 subject group residents**
- **Completion of initial assessment by 4/8 control group residents on ES3**
- **Completion of initial recording by 2/8 control group residents**
- **Completion of recorded surgical procedure by 2/5 expert Endoscopic Sinus Surgeons**

Reportable Outcomes:

We do not, as of yet, have any reportable outcomes due to the continuous delay we had been faced with.

Conclusions:

N/A

References:

N/A

Appendices:

N/A

Supporting Data:

N/A